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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/146,839 09/03/98 SRINIVASAN

A MI22-1017

021567 MM91/0924  
WELLS ST JOHN ROBERTS GREGORY AND MATKIN  
SUITE 1300  
601 W FIRST AVENUE  
SPOKANE WA 99201-3828

EXAMINER

MA1,A

ART UNIT

PAPER NUMBER

2814

DATE MAILED:

09/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No. 09/146,839	Applicant(s) SRINIVASAN ET AL.	
	Examiner Anh D. Mai	Art Unit 2814	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2001.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4-8, 10, 13-28, 36, 38, 39, 43 and 44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-8, 10, 13-28, 36, 38, 39, 43 and 44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. The amendment objection under 35 U.S.C. 132 and claims rejection under 35 U.S.C. 112, first paragraph for containing new matter, as previously applied.
2. Claims 1, 4-7, 10, 16, 17 and 36 are rejected under 35 U.S.C. 103(a) for being unpatentable over Vassiliev (U.S. Patent No. 5,876,798), as previously applied.
3. Claim 8 is rejected under 35 U.S.C. 103(a) for being unpatentable over Vassiliev '798, as applied to claim 1 above, and further in view of Homma (U.S. Patent No. 5,288,518), as previously applied.
4. Claims 13-15 and 22-28 are rejected under 35 U.S.C. 103(a) for being unpatentable over Vassiliev '798 as applied to claims 1 above, and further in view of Kirchhoff et al. (U.S. Patent No. 6,057,250), as previously applied.
5. Claims 18-20, 38 and 39 are rejected under 35 U.S.C. 103(a) for being unpatentable over Vassiliev (U.S. Patent No. 5,876,798), as previously applied.

### ***Response to Amendment***

1. The amendment filed June 25, 2001 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the temperature "from about 500 °C but less than 630 °C".

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 43 and 44 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There does not appear to be a specific written description of the claim limitation temperature of “less than 630 °C” in the application as filed.

There are three specific temperature disclosed in the specification: 400 °C to about 700 °C preferably maintained about 500 °C. The temperature of 630 °C is not specifically indicated.

***Claim Rejections - 35 USC § 103***

3. Claims 18, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vassiliev ‘798.

With respect to claim 18, the rejection is shown in Paper No. 14.

With respect to claims 43 and 44, as best understood by the examiner, the pressure in the reaction chamber of Vassiliev is within the claimed range and the temperature is about 500 °C. Further, the temperature range does not appear to be critical.

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Given the teaching of the references, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to determine the optimum temperature of the deposition chamber. See *In re Aller*, Lacey and Hall (10 USPQ 233-237) "It is not inventive to discover optimum or workable ranges by routine experimentation."

***Response to Arguments***

4. Applicant's arguments filed June 25, 2001 have been fully considered but they are not persuasive.

With respect to the telephone interview, the examiner respectfully deny all substances of the telephone interview on June 18, 2001 with the exception of no agreement was reached.

***Claim Objection and Rejection under 35 U.S.C. 112, first paragraph.***

The new matters which are not supported by the originally filed application, are discovered during prosecution. Therefore, the objection to the new matters is proper.

To introduce new matter in to the specification, applicant is advised to file a Continuation-In-Part (CIP) application.

With respect to the rejection, the three specific temperatures disclosed in the specification are: 400 °C to about 700 °C, and more preferably maintained about 500 °C. (Page 5, lines 4-5).

The temperature of 630 °C only appears in the amended claims and is not supported by the *original specification*, therefore, it constitute new matter.

With respect to *in re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). The limitation "between 35% and 60%" meet the description requirement because 35% appears to be

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close to the disclosed value of 36%. In the instant application, the temperature 630 °C is neither supported by the specification as filed nor close to any disclosed temperatures. It is true that "630 °C" is within 400 °C to 700 °C, but picking a number, within a range, out of thin air requires written disclosure, since the temperatures appear to be critical to the invention.

The objection and rejection are, therefore maintained.

Rejection Under 35 U.S.C. 103.

Claims 1, 4-7, 10, 16, 17 and 36.

Applicant asserts that the CVD process of Vassiliev is conducted in the ABSENCE OF PLASMA. This assertion is baseless and not a fact. The matter at hand is whether or not Vassiliev has ever deposited doped silicon oxide layer in the present of plasma. The evidence shows that depositing fluorine doped silicon oxide in the present of plasma is clearly taught by Vassiliev (col. 6, ll. 8-14).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., voids or no voids, reliable or unreliable) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In responding to the examiner's statement, applicant cites *Wolf et al.* "Silicon Processing for the VLSI Era" Vol. 1. page 173, to support his position. However, there is no such statement shown on page 173.

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Applicant appears to contend that the deposition parameters as taught by Vassiliev can not result in the invention as claimed. As discussed in Paper No. 14, Vassiliev teaches all limitations of claim 1, with respect to the temperature, reactant components including plasma and the apparatus.

Assume that the cited portion of Wolf et al. existed, the term “attempting to increase deposition rates” by increasing the reactant partial pressures tends to initiate gas phase reactions”. However, the examiner’s statement in the rejection “it is well known in the art that the deposition rate is readily determined by the input of the reactant gas”, does not attempt to increase the deposition rate but rather determined the deposition rate as claimed. The term “attempting to increase deposition rate ...” means as the maximum deposition rate has reached, any surplus reactant gaseous react to each other thus, the deposition rate ceases to increase. Furthermore, the examiner also indicated that it is within the ability of the skill worker in the art at the time of the invention to determine the optimum deposition rate of the doped insulation material.

Additionally, one having ordinary skill in the art should have known that many factors influence the deposition rate and reactant gas input is one of them. For example, as pointed out by Wolf et al., on pages 162-163 of “Silicon Processing for the VLSI Era” Vol. 1, 2<sup>nd</sup> Edition, there are at least two factors directly influence the deposition rate in a CVD process, reaction rate-limited and mass-transport limited.

The applicant’s argument with respect to “attempting to increase deposition rate” is irrelevant to the rejection as indicated.

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Contrary to the applicant's assertion, Vassiliev does indeed teach depositing "with a plasma being present in the reaction chamber" as recited in claim 1. (See col. 6, ll. 8-14).

The rejection of claim 1, and the dependent claims thereof, is therefore *maintained*.

*Vassiliev '798 in view of Homma.*

As previously indicated, Vassiliev teaches all the features of claim 1, and in view of Homma, the atomic percentage of fluorine in the insulating material is shown.

The rejection is maintained.

*Vassiliev '798 in view of Kirchhoff et al.*

As previously indicated, Vassiliev teaches all the features of claim 1. the combination of Vassiliev and Kirchhoff has rendered claim 13-15 and 22-28 obvious.

The rejection is maintained.

*Claims 18-20, 38 and 39.*

Applicant repeats a similar argument with respect to claim 1.

The similar response is also applied here. The rejection is also maintained.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh D. Mai whose telephone number is (703) 305-0575. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A.M  
September 19, 2001

  
OLIK CHAUDHURI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800